pt. 4a.

REPORT ON MACHINERY.

No. 4822.

Received at London Office

Date of writing Report 25: 7: 1921. When handed in at Local Office 25: 7: 1921. Port of MANCHESTER.

No. in Reg. Book. Survey held at Manchester. Date, First Survey 30. 3. 21. Last Survey 22. 7. 1921.

(Number of Visits 13.)

on the H.P. & L.P. STEAM TURBINES. ENG. Nos 1892 & 1893 for Wm. BEARDMORE & Co's Contract No. 622. S.S. "BRITISH MERCHANT."

Tons { Gross / Net

Master. Built at. By whom built. When built.

Engines made at Manchester. By whom made Metropolitan-Vickers Electrical Co when made 1921.

Boilers made at. By whom made. when made.

Registered Horse Power. Owners. Port belonging to.

Shaft Horse Power at Full Power 3200. Is Refrigerating Machinery fitted for cargo purposes. Is Electric Light fitted.

TURBINE ENGINES, &c.—Description of Engines RATEAU IMPULSE H.P. & L.P. No. of Turbines TWO.

Diameter of Rotor Shaft Journals, H.P. 4½" ✓ L.P. 4½" ✓ Diameter of Pinion Shaft.

Diameter of Journals. Distance between Centres of Bearings. Diameter of Pitch Circle.

Diameter of Wheel Shaft. Distance between Centres of Bearings. Diameter of Pitch Circle of Wheel.

Width of Face. Diameter of Thrust Shaft under Collars. Diameter of Tunnel Shaft as per rule / as fitted.

No. of Screw Shafts. Diameter of same as per rule / as fitted. Diameter of Propeller. Pitch of Propeller.

No. of Blades. State whether Moveable. Total Surface. Diameter of Rotor Drum, H.P. L.P. astern.

Thickness at Bottom of Groove, H.P. L.P. Astern. Revs. per Minute at Full Power, Turbine. Propeller.

PARTICULARS OF BLADING.

WHEEL.	H.P. HEIGHT OF BLADES.	H.P. DIAMETER AT TIP.	H.P. NO. OF ROWS.	L.P. HEIGHT OF BLADES.	L.P. DIAMETER AT TIP.	L.P. NO. OF ROWS.	ASTERN. HEIGHT OF BLADES.	ASTERN. DIAMETER AT TIP.	ASTERN. NO. OF ROWS.
1ST ~~EXPANSION~~	7/16" × 11/16"	3'-2 7/16" × 3'-2 11/16"	2.	1 5/16"	3'-3 5/16"	1.		H.P.	
2ND "	11/16"	3'-2 11/16"	1.	1 13/16"	3'-3 13/16"	1.	1" × 2 1/8"	3'-2 3/4" × 3'-3 7/8"	2 rows on one wheel
3RD "	7/8"	3'-2 7/8"	1.	2 15/16	3'-4 15/16"	1.			
4TH "	7/8"	3'-2 7/8"	1.	4 3/16"	3'-6 3/16"	1.		L.P.	
5TH "	1"	3'-3"	1.	6 3/8"	3'-8 3/8"	1.	3 3/16 × 5 1/16	3'-5 3/16 × 3'-7 7/8	2 wheels one row each
6TH "				8 1/4"	3'-10 1/4"	1.			
7TH "				10 3/16"	4'-0 3/16"	1.			
8TH "									

No. and size of Feed pumps.

No. and size of Bilge pumps.

No. and size of Bilge suctions in Engine Room.

In Holds, &c.

No. of Bilge Injections. sizes. Connected to condenser, or to circulating pump. Is a separate Donkey Suction fitted in Engine Room & size.

Are all the bilge suction pipes fitted with roses. Are the roses in Engine room always accessible.

Are all connections with the sea direct on the skin of the ship. Are they Valves or Cocks.

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates. Are the Discharge Pipes above or below the deep water line.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel. Are the Blow Off Cocks fitted with a spigot and brass covering plate.

What pipes are carried through the bunkers. How are they protected.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times.

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges.

Is the Screw Shaft Tunnel watertight. Is it fitted with a watertight door. worked from.

BOILERS, &c.—(Letter for record) Manufacturers of Steel.

Total Heating Surface of Boilers. Is Forced Draft fitted. No. and Description of Boilers.

Working Pressure. Tested by hydraulic pressure to. Date of test. No. of Certificate.

Can each boiler be worked separately. Area of fire grate in each boiler. No. and Description of Safety Valves to each boiler. Area of each valve. Pressure to which they are adjusted. Are they fitted with easing gear.

Smallest distance between boilers or uptakes and bunkers or woodwork. Mean dia. of boilers. Length. Material of shell plates.

Thickness. Range of tensile strength. Are the shell plates welded or flanged. Descrip. of riveting: cir. seams. long. seams. Diameter of rivet holes in long. seams. Pitch of rivets. Lap of plates or width of butt straps.

Per centages of strength of longitudinal joint rivets / plates. Working pressure of shell by rules. Size of manhole in shell.

Size of compensating ring. No. and Description of Furnaces in each Boiler. Material. Outside diameter.

Length of plain part top / bottom. Thickness of plates crown / bottom. Description of longitudinal joint. No. of strengthening rings.

Working pressure of furnace by the rules. Combustion chamber plates: Material. Thickness: Sides. Back. Top. Bottom.

Pitch of stays to ditto: Sides. Back. Top. If stays are fitted with nuts or riveted heads. Working pressure by rules.

Material of stays. Diameter at smallest part. Area supported by each stay. Working pressure by rules. End plates in steam space.

Material. Thickness. Pitch of stays. How are stays secured. Working pressure by rules. Material of stays.

Diameter at smallest part. Area supported by each stay. Working pressure by rules. Material of Front plates at bottom.

Thickness. Material of Lower back plate. Thickness. Greatest pitch of stays. Working pressure of plate by rules.

Diameter of tubes. Pitch of tubes. Material of tube plates. Thickness: Front. Back. Mean pitch of stays.

Pitch across wide water spaces. Working pressures by rules. Girders to Chamber tops: Material. Depth and thickness of girder at centre. Length as per rule. Distance apart. Number and pitch of stays in each.

Working pressure by rules. Steam dome: description of joint to shell. % of strength of joint. Diameter.

Thickness of shell plates. Material. Description of longitudinal joint. Diameter of rivet holes. Pitch of rivets.

Working pressure of shell by rules. Crown plates: Thickness. How stayed.

SUPERHEATER. Type ______ Date of Approval of Plan ______ Tested by Hydraulic Pressure to ______

Date of Test ______ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler ______

Diameter of Safety Valve ______ Pressure to which each is adjusted ______ Is Easing Gear fitted ______

IS A DONKEY BOILER FITTED? ______ If so, is a report now forwarded? ______

SPARE GEAR. State the articles supplied:— 1- Spindle gland casing complete, 4- diaphragm gland rings, 1 set of Michell thrust pads, 2 bearings for turbine, 1- Spring for H.P. escape valve, 1- Spring for L.P. escape valve, 1- Spring for oil System escape valve.

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD. J Simpson Eng. D.O. Manufacturer.

Dates of Survey while building: During progress of work in shops - - Mar. 30. May 11.12.14.24.30. June 1.3.7.16.24.29. July 22.
During erection on board vessel - - -
Total No. of visits Total visits 13.

Is the approved plan of main boiler forwarded herewith ______
" " " donkey " " " ______

Dates of Examination of principal parts—Casings 14.5.21. Rotors 16.6.21. Blading 7.6.21. Gearing ______

Rotor shaft 3.6.21. Thrust shaft ______ Tunnel shafts ______ Screw shaft ______ Propeller ______

Stern tube ______ Steam pipes tested ______ Engine and boiler seatings ______ Engines holding down bolts ______

Completion of pumping arrangements ______ Boilers fixed ______ Engines tried under steam ______

Main boiler safety valves adjusted ______ Thickness of adjusting washers ______

Material and tensile strength of Rotor shaft Forged mild steel. H.P. 32.14 T.[□"] L.P. 35.6 T.[□"] Identification Mark on Do. H.P. U485, L.P. U694 DMc

Material and tensile strength of Pinion shaft ______ Identification Mark on Do. ______

Material of Wheel shaft ______ Identification Mark on Do. ______ Material of Thrust shaft ______ Identification Mark on Do. ______

Material of Tunnel shafts ______ Identification Marks on Do. ______ Material of Screw shafts ______ Identification Marks on Do. ______

Material of Steam Pipes ______ Test pressure ______

Is an installation fitted for burning oil fuel ______ Is the flash point of the oil to be used over 150°F. ______

Have the requirements of Section 49 of the Rules been complied with ______

Is this machinery a duplicate of a previous case ______ If so, state name of vessel ______

General Remarks (State quality of workmanship, opinions as to class, &c. These steam turbines have been built under Special Survey and the materials tested in accordance with the Rules of this Society. The materials & workmanship, so far as could be seen, are sound & good and eligible in my opinion to be classed with record of +LMC.
These Turbines have been dispatched to Messrs. W. Beardmore & Co of Dalmuir to be fitted onboard the S.S. "British Merchant" Job No 622.)

Certificate (if required) to be sent to ______
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee / Special (Mch. a/c; Lr. to Mch & Glo 5/8/21)	£ 15 : 4 : 0	When applied for, ______ 19__
Donkey Boiler Fee ...	£ : :	When received, 17.10.21 (per London Lr.)
Travelling Expenses (if any)	£ : :	

[signature]
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 7 NOV 1922

Assigned See Glasgow Report No. 42289.